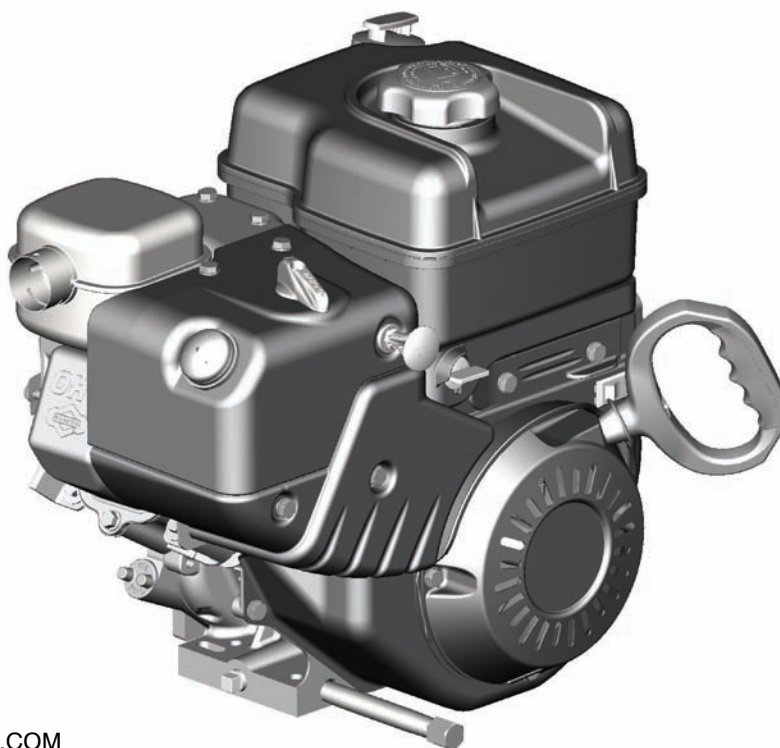




en *Operator's Manual*



Model	120000	Snow Series™ Snow Series MAX™
	150000	
	200000	
	210000	



BRIGGSandSTRATTON.COM

English

en

Form No. 277104WST-6/07
Printed in U.S.A.

Thank you for purchasing this quality-built Briggs & Stratton engine. We're pleased that you've placed your confidence in the Briggs & Stratton brand. When operated and maintained according to the instructions in this manual, your Briggs & Stratton product will provide many years of dependable service.



This manual contains safety information to make you aware of the hazards and risks associated with engines and how to avoid them. It also contains instructions for the proper use and care of the engine. Because Briggs & Stratton Corporation does not necessarily know what equipment this engine will power, it is important that you read and understand these instructions and the instructions for the equipment this engine powers. **Save these instructions for future reference.**

Where to Find Us

You never have to look far to find Briggs & Stratton service support for your engine. There are over 30,000 Briggs & Stratton authorized dealers worldwide who provide quality parts and service support. You can find your nearest service dealer by using our Dealer Locator at **BRIGGSandSTRATTON.COM**, or by calling Briggs & Stratton Customer Support at **(800) 233-3723**.

For replacement parts or technical assistance, record below the engine model, type, and code numbers along with the date of purchase. These numbers are located on your engine (see the **Features and Controls** page).

Date of purchase: _____
MM/DD/YYYY

Engine model: _____
Model: Type: Code:

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General Information


This is a single cylinder, air-cooled engine. It is a low emissions engine.


In the state of California, Model 120000, 150000, 200000, 210000 engines are certified by the California Air Resources Board to meet emissions standards for 250 hours. Such certification does not grant the purchaser, owner or operator of this engine any additional warranties with respect to the performance or operational life of this engine. This engine is warranted solely according to the product and emissions warranties stated elsewhere in this manual.

Symbols And Warnings

The safety alert symbol  is used to identify safety information about hazards that can result in personal injury. A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.

 **DANGER** indicates a hazard which, if not avoided, **will result in death or serious injury.**

 **WARNING** indicates a hazard which, if not avoided, **could result in death or serious injury.**

 **CAUTION** indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

CAUTION, when used **without** the alert symbol, indicates a situation that **could result in damage to the product.**

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

WARNING

Briggs & Stratton does not approve or authorize the use of these engines on 3-wheel All Terrain Vehicles (ATVs), motor bikes, fun/recreational go-karts, aircraft products, or vehicles intended for use in competitive events. Use of these engines in such applications could result in property damage, serious injury (including paralysis), or even death.

CAUTION: This engine was shipped from Briggs & Stratton without oil. Before you start the engine, make sure you add oil according to the instructions in this manual. If you start the engine without oil, it will be damaged beyond repair and will not be covered under warranty.

SAFETY AND CONTROL SYMBOLS



Fire



Moving Parts



Oil



Slow



Explosion



Shock



Fuel



Fast



Kickback



Wear Eye Protection



Fuel Shutoff



Stop



Hot Surface



Read Manual



On Off



Frostbite



Toxic Fumes



Hazardous Chemical



Choke

Operator Safety



WARNING



Gasoline and its vapors are extremely flammable and explosive.



Fire or explosion can cause severe burns or death.

When Adding Fuel

- Turn engine off and let engine cool at least 2 minutes before removing the fuel cap.
- Fill fuel tank outdoors or in well-ventilated area.
- Do not overfill fuel tank. Fill tank to approximately 1.5 inches (38 mm) below top of neck to allow for fuel expansion.
- Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.
- If fuel spills, wait until it evaporates before starting engine.

When Starting Engine

- Ensure that spark plug, muffler, fuel cap and air cleaner are in place and secured.
- Do not crank engine with spark plug removed.
- If engine floods, set choke (if equipped) to OPEN/RUN position, move throttle (if equipped) to FAST position and crank until engine starts.

When Operating Equipment

- Do not tip engine or equipment at angle which causes gasoline to spill.
- Do not choke the carburetor to stop engine.
- Never start or run the engine with the air cleaner assembly or the air filter removed.

When Changing Oil

- If you drain the oil from the top oil fill tube, the fuel tank must be empty or fuel can leak out and result in a fire or explosion.

When Transporting Equipment

- Transport with fuel tank EMPTY or with fuel shut-off valve OFF.

When Storing Gasoline Or Equipment With Fuel In Tank

- Store away from furnaces, stoves, water heaters or other appliances that have pilot light or other ignition source because they can ignite gasoline vapors.



WARNING



Starting engine creates sparking.

Sparking can ignite nearby flammable gases.

Explosion and fire could result.



- If there is natural or LP gas leakage in area, do not start engine.
- Do not use pressurized starting fluids because vapors are flammable.



WARNING



Engines give off carbon monoxide, an odorless, colorless, poison gas.

Breathing carbon monoxide can cause nausea, fainting or death.

- Start and run engine outdoors.
- Do not start or run engine in enclosed area, even if doors or windows are open.



WARNING



Contents are **HARMFUL OR FATAL IF SWALLOWED**. Avoid contact to eyes, skin, or clothing. Do not take internally. Avoid breathing the mist or vapor. Overexposure to eyes or skin can cause irritation. **KEEP STABILIZER OUT OF THE REACH OF CHILDREN.**



Fuel stabilizer is a hazardous chemical. **

- IF SWALLOWED, call physician immediately. Do not induce vomiting. If inhaled, remove to fresh air. In case of eye or skin contact, flush with water for 15 minutes.
- Store unopened cartridges in a cool, dry, well-ventilated area. Keep open cartridge in fuel cap and fuel cap closed on fuel tank when not in use.

** Fuel stabilizer contains: 2,6-di-tert-butylphenol (128-39-2) and aliphatic petroleum distillate (64742-47-8).

- *In case of emergency, contact a physician immediately and call 1-800-424-9300 for material safety information.*



WARNING


 Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go.

Broken bones, fractures, bruises or sprains could result.

- When starting engine, pull the starter cord slowly until resistance is felt and then pull rapidly to avoid kickback.
- Remove all external equipment/engine loads before starting engine.
- Direct-coupled equipment components such as, but not limited to, blades, impellers, pulleys, sprockets, etc., must be securely attached.



WARNING


 Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories.

Traumatic amputation or severe laceration can result.

- Operate equipment with guards in place.
- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewelry.
- Do not wear loose-fitting clothing, dangling drawstrings or items that could become caught.



WARNING

 Running engines produce heat. Engine parts, especially muffler, become extremely hot.

Severe thermal burns can occur on contact.



Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated debris from muffler area and cylinder area.
- Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.



WARNING

 Unintentional sparking can result in fire or electric shock.

 Unintentional start-up can result in entanglement, traumatic amputation, or laceration.

Fire hazard



Before performing adjustments or repairs:

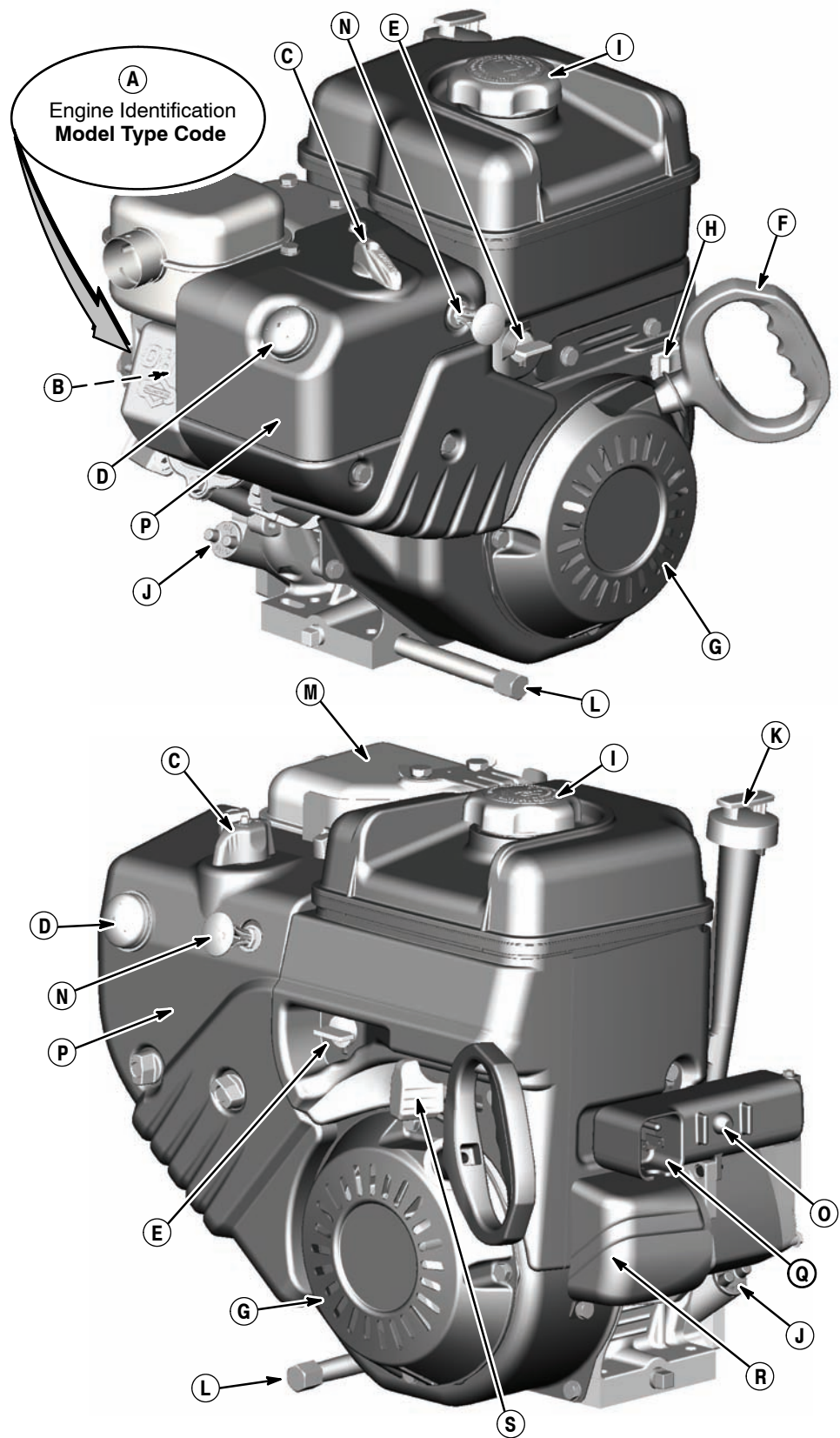
- Disconnect the spark plug wire and keep it away from the spark plug.
- Disconnect battery at negative terminal (only engines with electric start.)
- Use only correct tools.
- Do not tamper with governor spring, links or other parts to increase engine speed.
- Replacement parts must be the same and installed in the same position as the original parts.
- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.

When testing for spark:

- Use approved spark plug tester.
- Do not check for spark with spark plug removed.

Features and Controls

- A. Engine Identification
Model Type Code
- B. Spark Plug
- C. Choke
- D. Primer
- E. Fuel Shut-off Valve
- F. Starter Cord Handle
- G. Finger Guard
- H. Stop Switch (optional)
- I. Fuel Tank and Cap
- J. Oil Fill Cap
- K. Dipstick/Oil Fill
- L. Oil Drain Plug
- M. Muffler
Muffler Guard (optional)
Muffler Deflector
- N. Safety Key
- O. Push Button Electric Start
- P. Snow Hood
- Q. Power Cord Receptacle
- R. Electric Starter
- S. Throttle Control (optional)




Oil Capacity

Oil capacity (see the **Specifications** section)

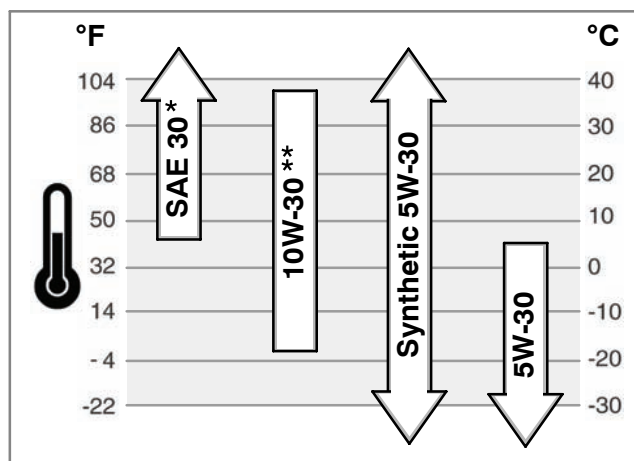
Oil Recommendations

We recommend the use of Briggs & Stratton Warranty Certified oils for best performance. Other high-quality detergent oils are acceptable if classified for service SF, SG, SH, SJ or higher. Do not use special additives.

Outdoor temperatures determine the proper oil viscosity for the engine. Use the chart to select the best viscosity for the outdoor temperature range expected.



Note: Synthetic oil meeting ILSAC GF-2, API certification mark and API service symbol (shown at left) with "SJ/CF ENERGY CONSERVING" or higher, is an acceptable oil at all temperatures. **Use of synthetic oil does not alter required oil change intervals.**



* Below 40°F (4°C) the use of SAE 30 will result in hard starting.

** Above 80°F (27°C) the use of 10W-30 may cause increased oil consumption. Check oil level more frequently.

How To Check/Add Oil

Before adding or checking the oil

- Place engine level.
- Clean the oil fill area of any debris.

Models with oil fill cap (Figure 1)

1. Remove the oil fill cap (A).
2. To add oil, pour the oil slowly into the engine oil fill (B). Fill to point of overflowing.
3. Replace and tighten the oil fill cap.

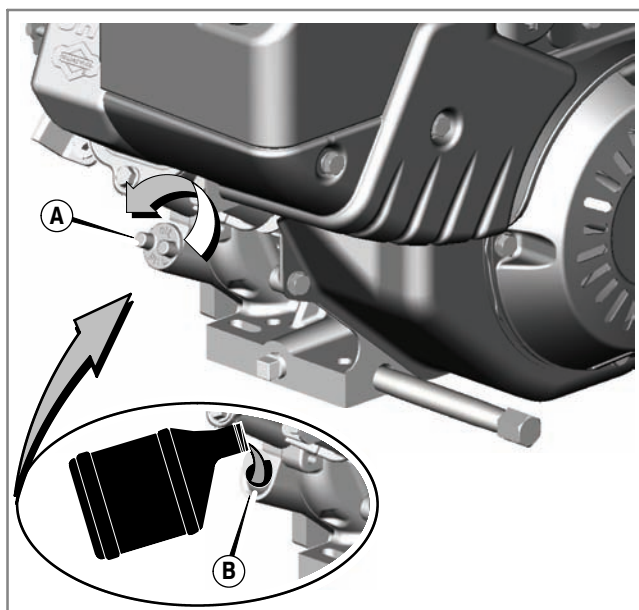


Figure 1

Models with extended dipstick (Figure 2)

1. Remove the dipstick (C) and wipe with a clean cloth.
2. Insert and tighten the dipstick.
3. Remove the dipstick and check the oil level. Make sure the oil is at the FULL mark (D) on the dipstick.
4. To add oil, pour the oil slowly into the engine oil fill (B). **Do not overfill.** After adding oil, wait one minute and then recheck the oil level.
5. Fill to the FULL mark (D) on the dipstick.
6. Replace and tighten the dipstick.

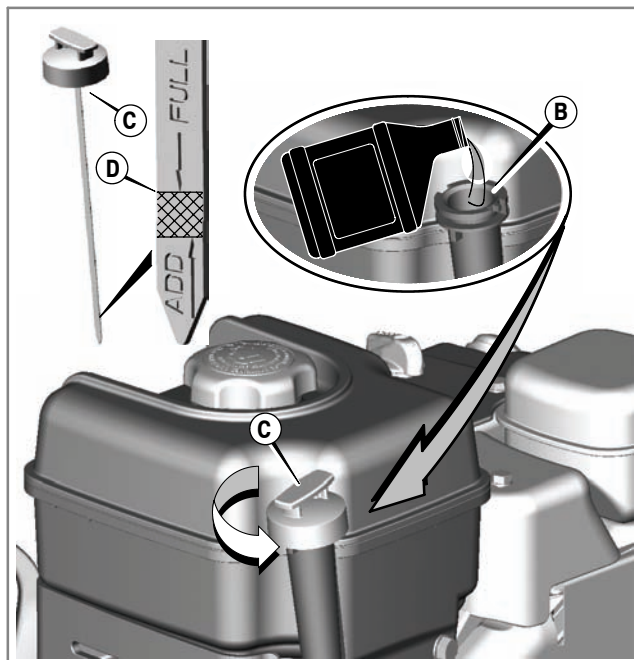


Figure 2

Operation

Fuel Recommendations

Fuel must meet these requirements:

- Clean, fresh, unleaded gasoline.
- A minimum of 87 octane/87 AKI (91 RON). High altitude use, see below.
- Gasoline with up to 10% ethanol (gasohol) or up to 15% MTBE (methyl tertiary butyl ether) is acceptable.

CAUTION: Do not use unapproved gasolines, such as E85. Do not mix oil in gasoline or modify the engine to run on alternate fuels. This will damage the engine components and **void the engine warranty**.

To protect the fuel system from gum formation, mix a fuel stabilizer into the fuel. See **Storage**. All fuel is not the same. If starting or performance problems occur, change fuel providers or change brands. This engine is certified to operate on gasoline. The emissions control system for this engine is EM (Engine Modifications)

High Altitude

At altitudes over 5,000 feet (1524 meters), a minimum 85 octane/85 AKI (89 RON) gasoline is acceptable. To remain emissions compliant, high altitude adjustment is required. Operation without this adjustment will cause decreased performance, increased fuel consumption, and increased emissions. See a Briggs & Stratton Authorized Dealer for high altitude adjustment information.

Operation of the engine at altitudes below 2,500 feet (762 meters) with the high altitude kit is not recommended.

How To Add Fuel



WARNING



Gasoline and its vapors are extremely flammable and explosive.



Fire or explosion can cause severe burns or death.

When Adding Fuel

- Turn engine off and let engine cool at least 2 minutes before removing the fuel cap.
 - Fill fuel tank outdoors or in well-ventilated area.
 - Do not overfill fuel tank. Fill tank to approximately 1.5 inches (38 mm) below top of neck to allow for fuel expansion.
 - Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
 - Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.
 - If fuel spills, wait until it evaporates before starting engine.
1. Clean the fuel cap area of dirt and debris. Remove the fuel cap (A) (Figure 3).

2. Fill the fuel tank (B) with gasoline. To allow for expansion of the gasoline, do not fill above the bottom of the fuel tank neck (C).
3. Reinstall the fuel cap.

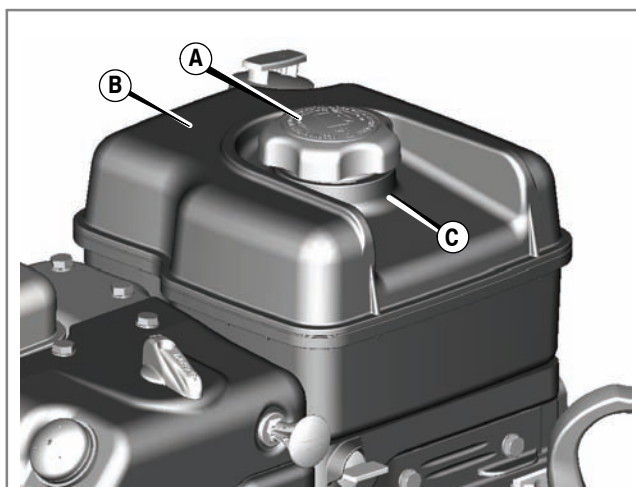


Figure 3

Fresh Start® Fuel Cap



WARNING



Contents are **HARMFUL OR FATAL IF SWALLOWED**. Avoid contact to eyes, skin, or clothing. Do not take internally. Avoid breathing the mist or vapor. Overexposure to eyes or skin can cause irritation. **KEEP STABILIZER OUT OF THE REACH OF CHILDREN.**



Fuel stabilizer is a hazardous chemical. **

- IF SWALLOWED, call physician immediately. Do not induce vomiting. If inhaled, remove to fresh air. In case of eye or skin contact, flush with water for 15 minutes.
- Store unopened cartridges in a cool, dry, well-ventilated area. Keep open cartridge in fuel cap and fuel cap closed on fuel tank when not in use.

** Fuel stabilizer contains: 2,6-di-tert-butylphenol (128-39-2) and aliphatic petroleum distillate (64742-47-8).

- *In case of emergency, contact a physician immediately and call 1-800-424-9300 for material safety information.*

Some engines are equipped with a Fresh Start fuel cap (A) (Figure 4). The Fresh Start fuel cap is designed to hold a cartridge (B), sold separately, that contains fuel stabilizer. Install the cartridge as follows:

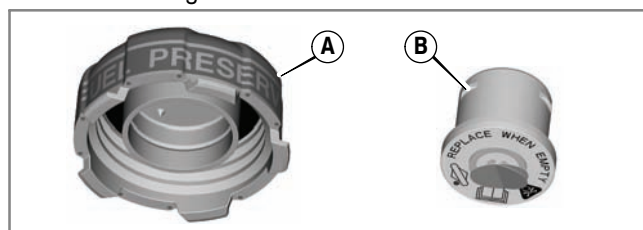


Figure 4

1. Remove the fuel cap (A) from the fuel tank (C) (Figure 5).
2. Push the small end (D) of the cartridge (B) into the fuel cap.
3. Press (E) to snap the cartridge into the fuel cap.
4. Pull the tab (F) to remove the membrane cover.
5. Reinstall the fuel cap.
6. When adding fuel, check the cartridge for fuel stabilizer. If empty, remove and replace with a new cartridge.

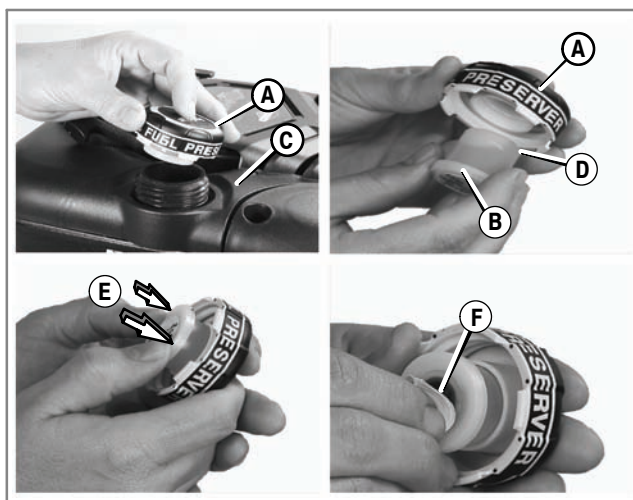


Figure 5

Operation

How To Start The Engine



WARNING



Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go.

Broken bones, fractures, bruises or sprains could result.

- When starting engine, pull the starter cord slowly until resistance is felt and then pull rapidly to avoid kickback.



WARNING



Gasoline and its vapors are extremely flammable and explosive.



Fire or explosion can cause severe burns or death.

When Starting Engine

- Ensure that spark plug, muffler, fuel cap and air cleaner are in place and secured.
- Do not crank engine with spark plug removed.
- If engine floods, set choke (if equipped) to open/run position, move throttle (if equipped) to fast position and crank until engine starts.



WARNING



Engines give off carbon monoxide, an odorless, colorless, poison gas.

Breathing carbon monoxide can cause nausea, fainting or death.

- Start and run engine outdoors.
- Do not start or run engine in enclosed area, even if doors or windows are open.



WARNING



Unintentional sparking can result in fire or electric shock.



Unintentional start-up can result in entanglement, traumatic amputation, or laceration.




- Use a 3-wire extension cord.
- First attach extension cord to electric starter connector and then into a wall receptacle. If additional extension cord is required, use a 3-wire.
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

CAUTION: This engine was shipped from Briggs & Stratton without oil. Before you start the engine, make sure you add oil according to the instructions in this manual. If you start the engine without oil, it will be damaged beyond repair and will not be covered under warranty.

1. Check the oil level. See the **How To Check/Add Oil** section.

2. Make sure equipment drive controls, if equipped, are disengaged. See the equipment manual for location and operation of these controls.
3. Push the stop switch (E), if equipped, to the on position (Figure 6).

or

Move the throttle control lever (B), if equipped, to the fast  position (Figure 7). Operate the engine with the throttle control lever in the fast position.

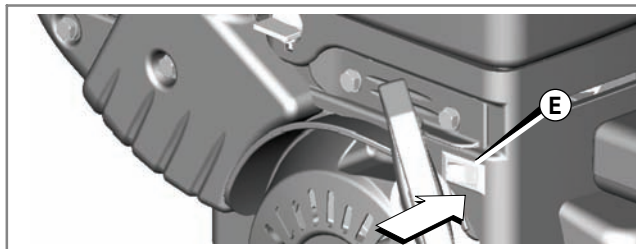



Figure 6

4. Turn the fuel shut-off valve (A), if equipped, to the on position (Figure 7).
5. Push in the safety key (C).
6. Turn the choke control knob (D) to the choke  position.

Note: Do not use the choke to start a warm engine.

7. Push the primer (F) two times. See Figure 7.

Note: Do not use the primer to start a warm engine.

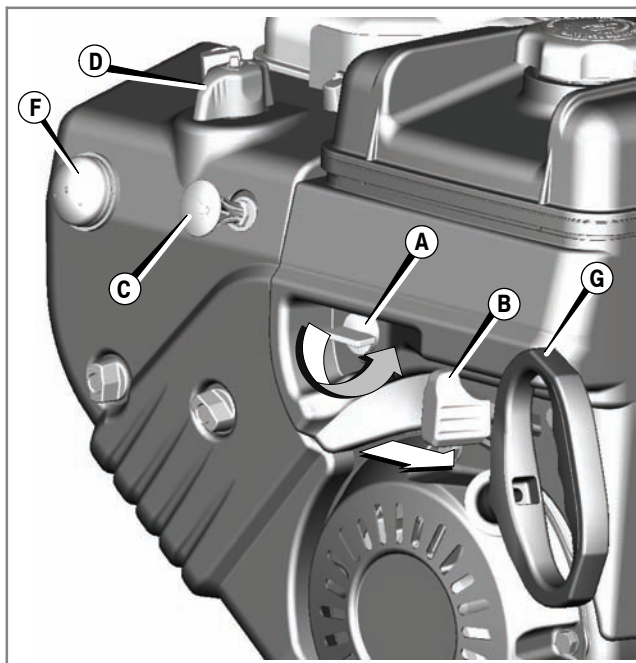


Figure 7

8. **Rewind Start:** Firmly hold the starter cord handle (G, Figure 7). Pull the starter cord handle slowly until resistance is felt, then pull rapidly.

Note: If the engine does not start after three attempts, see the **Troubleshooting** section.

⚠ WARNING: Rapid retraction of the starter cord (kickback) will pull your hand and arm toward the engine faster than you can let go. Broken bones, fractures, bruises or sprains could result. When starting engine, pull the starter cord slowly until resistance is felt and then pull rapidly to avoid kickback.

- Electric Start:** First connect the extension cord to the power cord receptacle (H, Figure 8) and then into a wall receptacle. If an additional extension cord is required, make sure it is a 3-wire.

⚠ WARNING: If the extension cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

- Electric Start:** Depress the push button (I). After you start the engine, first disconnect the extension cord from the wall receptacle and then from the power cord receptacle (H).

CAUTION: To extend the life of the starter, use short starting cycles (five seconds maximum). Wait one minute between starting cycles.

Note: If the engine does not start after three attempts, see the **Troubleshooting** section.

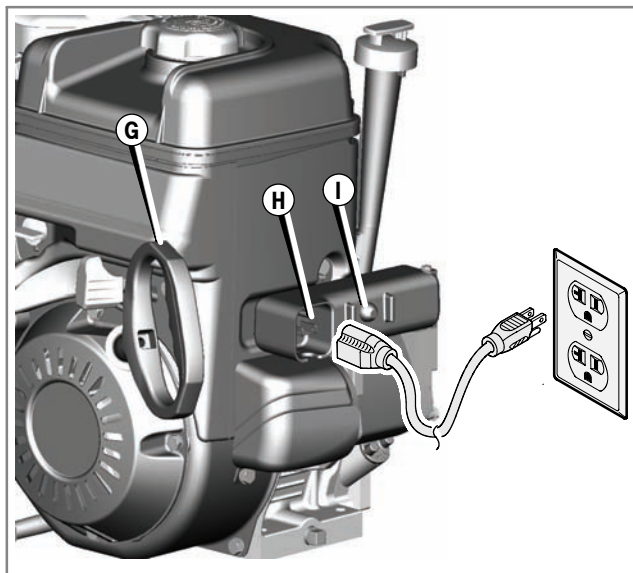





Figure 8

- Allow the engine to warm up for several minutes. Then, slowly move the choke control knob to the run  position.

How To Stop The Engine

⚠ WARNING
Gasoline and its vapors are extremely flammable and explosive.
Fire or explosion can cause severe burns or death.

- Do not choke the carburetor to stop engine.

- Move the stop switch (A), if equipped, to the stop position (Figure 9).
or
 Move the throttle control lever (B), if equipped, to slow  and then to the stop  position (Figure 10).
- Remove the safety key (C, Figure 10). Keep the safety key out of reach of children.
- After the engine stops, turn the fuel shut-off valve (D) to the closed position.

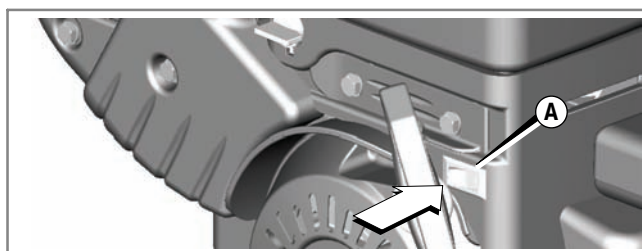


Figure 9

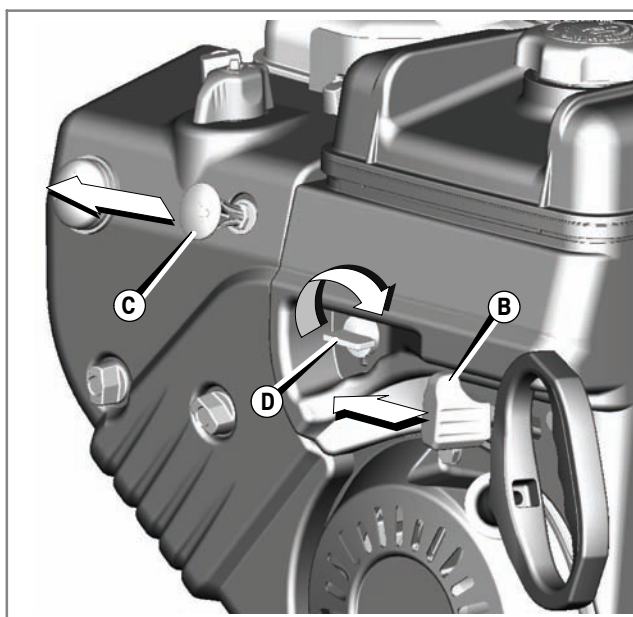


Figure 10

Maintenance

Regular maintenance will improve performance and extend the life of the equipment. **Use only original equipment replacement parts. Other parts may not perform as well, may damage the unit, and may result in injury.** In addition, use of other parts may void your warranty.

We recommend that you see any Briggs & Stratton Authorized Dealer for all maintenance and service of the engine and engine parts.

CAUTION: All the components used to build this engine must remain in place for proper operation.

Emissions Control

Maintenance, replacement, or repair of the emissions control devices and systems may be performed by any non-road engine repair establishment or individual.

However, to obtain "no charge" emissions control service, the work must be performed by a factory authorized dealer. See the Emissions Warranty.



WARNING

Unintentional sparking can result in fire or electric shock.

Unintentional start-up can result in entanglement, traumatic amputation, or laceration.

Fire hazard

Before performing adjustments or repairs:

- Disconnect the spark plug wire and keep it away from the spark plug.
- Use only correct tools.
- Do not tamper with governor spring, links or other parts to increase engine speed.
- Replacement parts must be the same and installed in the same position as the original parts.
- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.

When testing for spark:

- Use approved spark plug tester.
- Do not check for spark with spark plug removed.

Maintenance Chart

Follow the hourly or calendar interval, whichever occurs first.

First 5 Hours
<ul style="list-style-type: none">• Change oil
Every 8 Hours or Daily
<ul style="list-style-type: none">• Check engine oil level
Every 50 Hours or Annually
<ul style="list-style-type: none">• Change engine oil• Check muffler and muffler guard
Annually
<ul style="list-style-type: none">• Replace spark plug• Check valve clearance **

** Not required unless engine performance problems are noted.

Carburetor Adjustment

Never make adjustments to the carburetor. The carburetor was set at the factory to operate efficiently under most conditions. However, if adjustments are required, see any Briggs & Stratton Authorized Dealer for service.

CAUTION: The manufacturer of the equipment on which this engine is installed specifies the top speed at which the engine will be operated. **Do not exceed** this speed.

How To Replace The Spark Plug

Replace the spark plug annually. Check the gap (A, Figure 11) with a wire gauge (B). If necessary, reset the gap. Install and tighten the spark plug to the recommended torque. For gap setting or torque, see the **Specifications** section.

Note: In some areas, local law requires using a resistor spark plug to suppress ignition signals. If this engine was originally equipped with a resistor spark plug, use the same type for replacement.

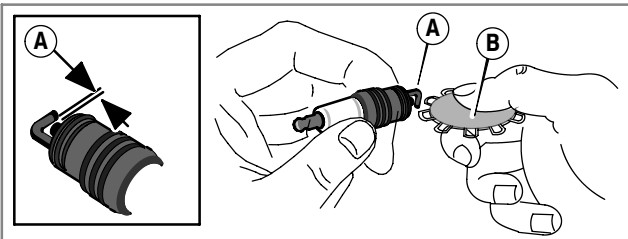


Figure 11

How To Access The Spark Plug (2-Piece Snow Hood)

To access the spark plug, the snow hood must be removed as follows:

1. Remove the safety key (A). Keep the safety key out of reach of children. See Figure 12.
2. Grasp the choke control knob (B) and pull up to remove.
3. Remove the mounting screws (C, Figure 13).
4. Carefully remove the top part of the snow hood (D). Do not disconnect the primer hose (E) or the stop switch wire (F).
5. The spark plug (G) can now be accessed.
6. Before installation of the snow hood, make sure that the primer hose and the stop switch wire are connected.
7. Mount the top part of the snow hood to the snow hood base (H). Make sure the top interlocks with the base. Secure with the mounting screws.
8. Align the slots in the choke control knob with the tabs on the choke shaft (I) and then push down to install. If the knob is not installed correctly, the choke will not operate.
9. Do not install the safety key until you are ready to start the engine.

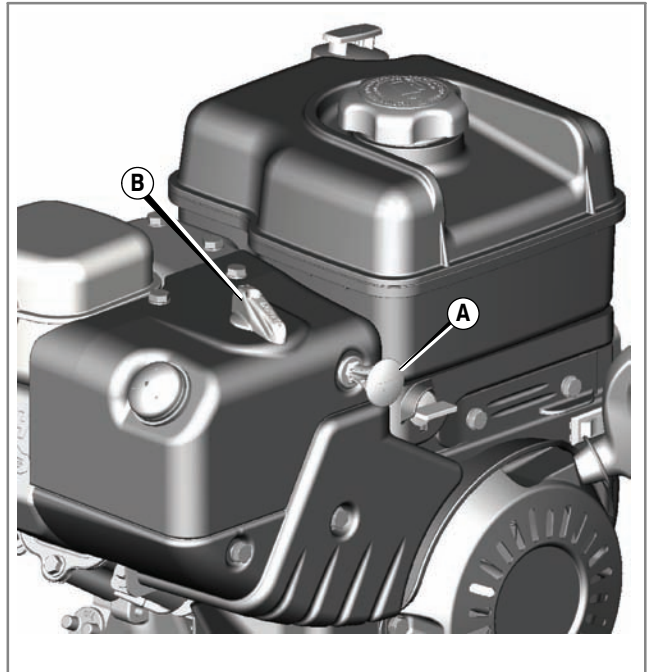


Figure 12

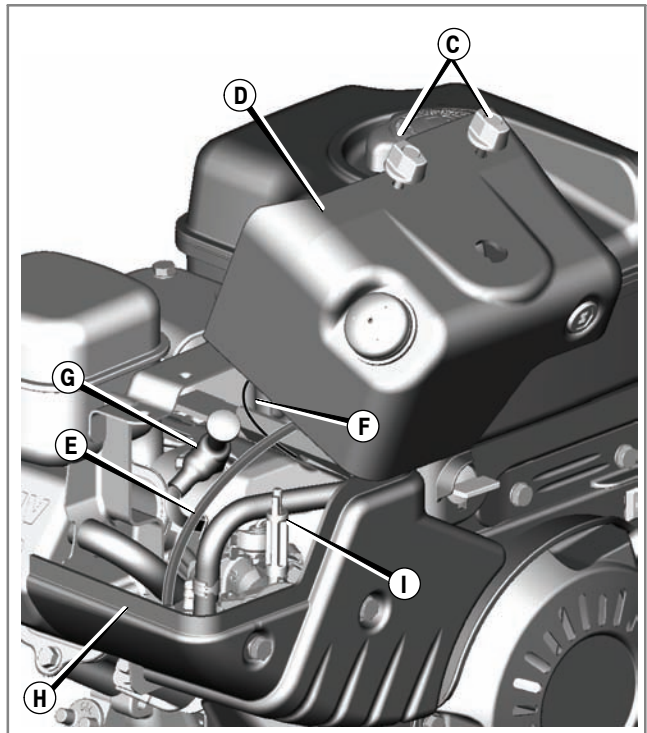


Figure 13

Maintenance

How To Access The Spark Plug (1-Piece Snow Hood)

To access the spark plug, the snow hood must be removed as follows:

1. Remove the safety key (A). Keep the safety key out of reach of children. See Figure 14.
2. Grasp the choke control knob (B) and pull up to remove.
3. Remove the mounting screws (C).
4. Carefully remove the snow hood (D). Do not disconnect the primer hose (E) or the stop switch wire (F) (Figure 15).
5. The spark plug (G) can now be accessed.
6. Before installation of the snow hood, make sure that the primer hose and the stop switch wire are connected.
7. Mount the snow hood to the engine and secure with the mounting screws (Figure 14).
8. Install the choke control knob onto the choke shaft (I).
9. Do not install the safety key until you are ready to start the engine.

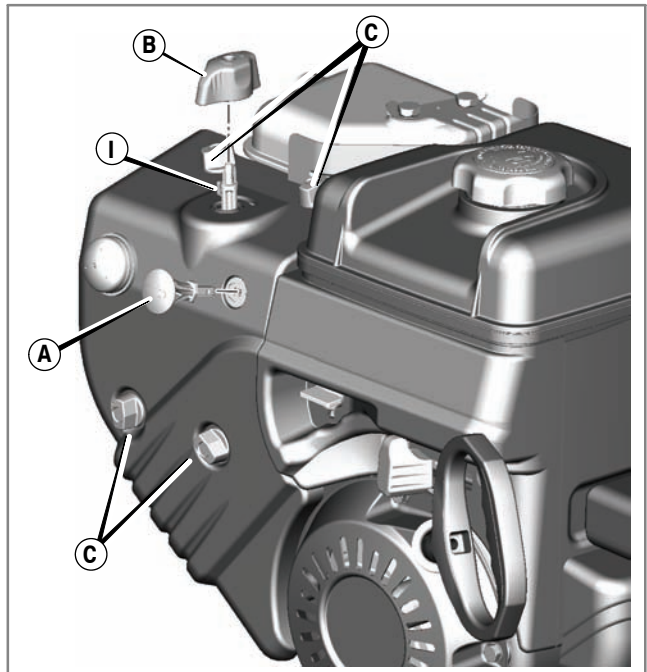


Figure 14

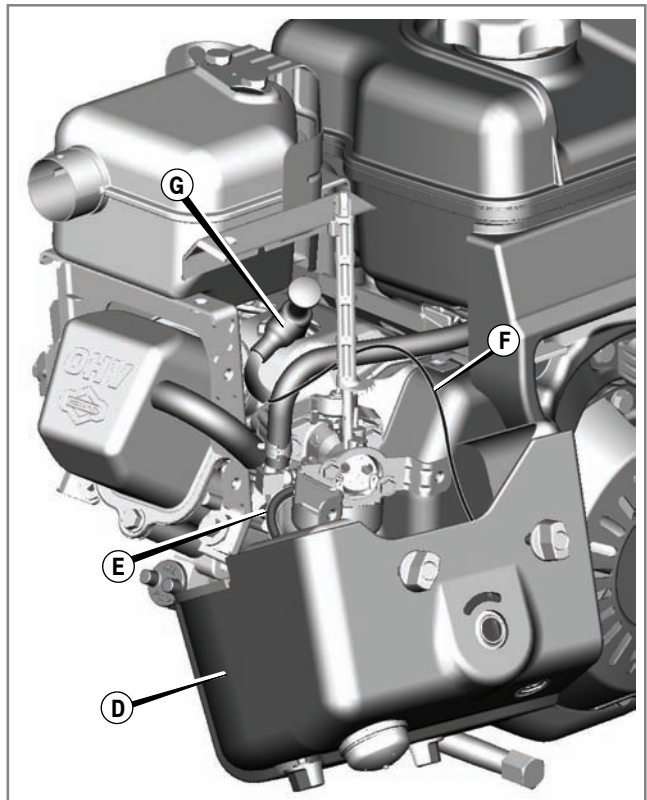


Figure 15

Inspect Muffler And Spark Arrester



WARNING



Running engines produce heat. Engine parts, especially muffler, become extremely hot.

Severe thermal burns can occur on contact.



Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated debris from muffler area and cylinder area.
- Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.

Inspect the muffler (A) for cracks, corrosion, or other damage. Remove the muffler deflector (B), if equipped, and inspect for damage or carbon blockage. If replacement parts are required, make sure to use only original equipment replacement parts.



WARNING: Replacement parts must be the same and installed in the same position as the original parts or fire could result.

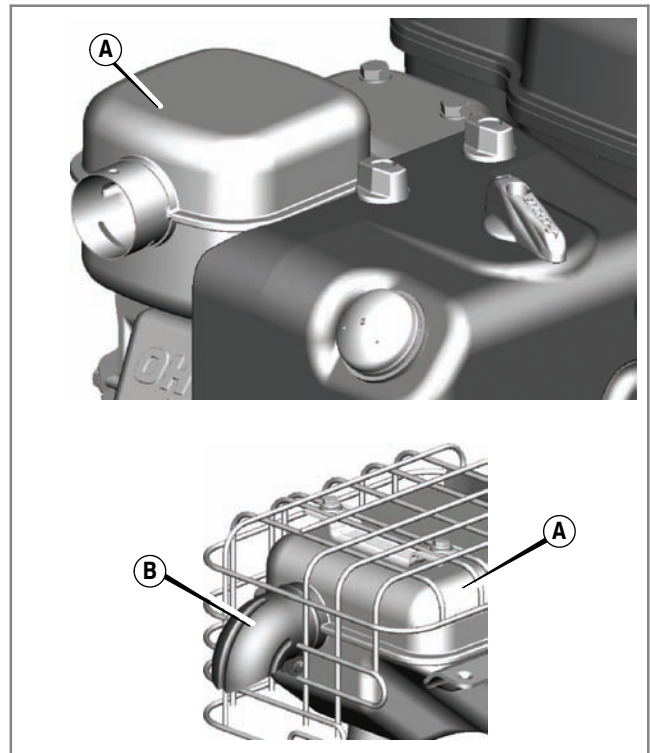


Figure 16

Air Filter

This engine is **not equipped** with an air filter. **DO NOT use this engine for anything other than snow removal.**

Maintenance

How To Change The Oil

CAUTION: Used oil is a hazardous waste product and must be disposed of properly. Do not discard with household waste. Check with your local authorities, service center, or dealer for safe disposal/recycling facilities.

Remove Oil

1. With engine off but still warm, disconnect the spark plug wire (A) and keep it away from the spark plug (Figure 17).

Note: To access the spark plug wire, you must first remove the snow hood from the engine. See **How To Access The Spark Plug**.

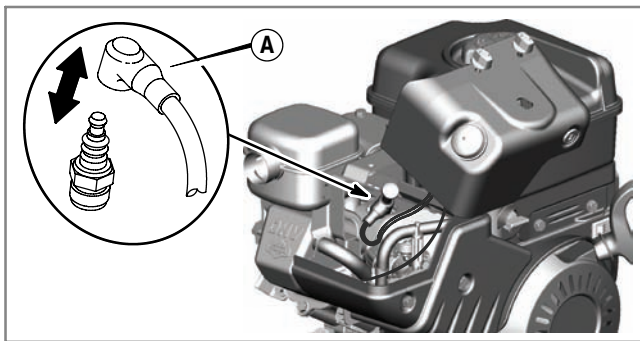


Figure 17

2. Remove the oil drain cap (B, Figure 18). Drain the oil into an approved receptacle.
3. After the oil has drained, install and tighten the oil drain cap.

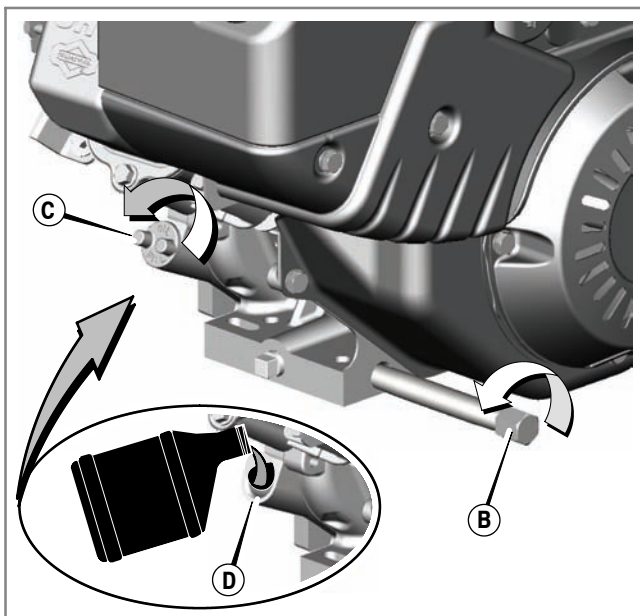


Figure 18

Add oil

- Place engine level.
- Clean the oil fill area of any debris.
- See the **Specifications** section for oil capacity.

Models with oil fill cap

1. Remove the oil fill cap (C, Figure 18).
2. Pour the oil slowly into the engine oil fill (D). Fill to point of overflowing.
3. Replace and tighten the oil fill cap.

Models with extended dipstick

1. Remove the dipstick (E, Figure 19) and wipe with a clean cloth.
2. Pour the oil slowly into the engine oil fill (D). **Do not overfill.** After adding oil, wait one minute and then recheck the oil level.
3. Install and tighten the dipstick.
4. Remove the dipstick and check the oil level. Remove and check the oil level. Oil level should be at the FULL mark (F) on the dipstick.
5. Install and tighten the dipstick.

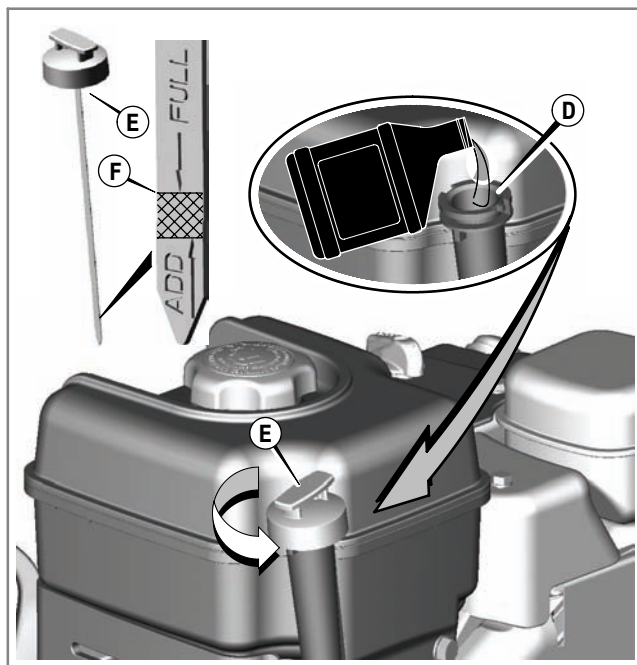


Figure 19

Storage (over 30 days)



WARNING



Gasoline and its vapors are extremely flammable and explosive.



Fire or explosion can cause severe burns or death.

When Storing Gasoline Or Equipment With Fuel In Tank

- Store away from furnaces, stoves, water heaters or other appliances that have pilot lights or other ignition sources because they can ignite gasoline vapors.

When Transporting Equipment

- The fuel tank must be empty or the fuel shut-off valve must be in the closed position.

Fuel System

Fuel can become stale when stored over 30 days. Stale fuel causes acid and gum deposits to form in the fuel system or on essential carburetor parts. To keep fuel fresh, use Briggs

& Stratton FRESH START® fuel stabilizer, available as a liquid additive or a drip concentrate cartridge.

There is no need to drain gasoline from the engine if a fuel stabilizer is added according to instructions. Run the engine for 2 minutes to circulate the stabilizer throughout the fuel system. The engine and fuel can then be stored up to 24 months.

If gasoline in the engine has not been treated with a fuel stabilizer, it must be drained into an approved container. Run the engine until it stops from lack of fuel. The use of a fuel stabilizer in the storage container is recommended to maintain freshness.

Engine Oil

While the engine is still warm, change the engine oil.

Clean Engine

Clean the engine of surface debris, chaff, or grass.

Storage Area

Store in a clean, dry area. Do not store in the same area as a stove, furnace, water heater, or other appliance that uses a pilot light or has a device that can create a spark.

Troubleshooting

PROBLEM	CAUSE	CORRECTION
Will not start	Out of fuel	Add clean fresh fuel.
	Flooded carburetor	Move the choke control to run and the throttle control, if equipped, to fast. Then follow the starting procedure until the engine starts.
	Low oil	Check oil level. Add to FULL mark on dipstick.
	Oil level is above FULL mark on dipstick	Drain excess oil from engine to bring oil level to FULL mark on dipstick.
	Fouled spark plug	Clean and set spark plug gap (see Specifications section). If the spark plug electrode is burned or worn, replace the spark plug.
	Fuel shut-off valve, if equipped, is closed.	Open the fuel shut-off valve.
	Stop switch, if equipped, is in off position.	Push the stop switch to the on position.
	Safety key is not installed.	Install safety key.
Difficult to start <i>or</i> Does not run smoothly <i>or</i> Will not run at full speed	Stale fuel	Drain fuel tank. Fill with fresh fuel.
	Dirt in fuel tank	Drain and clean fuel tank. Fill with fresh fuel.
	Carburetor out of adjustment	Contact a Briggs & Stratton Authorized Dealer.
	Fouled spark plug	Clean and set spark plug gap (see Specifications section). If the spark plug electrode is burned or worn, replace the spark plug.
	Debris in control linkages	Carefully clean debris from control linkages.
Can not pull starter rope	Equipment controls, if equipped, are engaged	Disengage equipment controls
	Engine seized	Contact a Briggs & Stratton Authorized Dealer
Excessive smoke	Oil level is above FULL mark on dipstick	Drain excess oil from engine to bring oil level to FULL mark on dipstick.
	Fouled spark plug	Clean and set spark plug gap (see Specifications section). If the spark plug electrode is burned or worn, replace the spark plug.
Excessive vibration	Loose parts on engine or equipment	Stop engine immediately. Tighten all fasteners. Replace any damaged parts. If vibration continues, contact a Briggs & Stratton Authorized Dealer.

Need Assistance? Go to **BRIGGSandSTRATTON.COM** or call **(800) 233-3723**

LIMITED WARRANTY

Briggs & Stratton Corporation will repair or replace, free of charge, any part(s) of the engine that is defective in material or workmanship or both. Transportation charges on product submitted for repair or replacement under this warranty must be borne by purchaser. This warranty is effective for and is subject to the time periods and conditions stated below. For warranty service, find the nearest Authorized Service Dealer in our dealer locator map at BRIGGSandSTRATTON.COM, or by calling 1-800-233-3723, or as listed in the 'Yellow Pages'™.

There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one year from purchase, or to the extent permitted by law and all implied warranties are excluded. Liability for incidental or consequential damages are excluded to the extent exclusion is permitted by law. Some states or countries do not allow limitations on how long an implied warranty lasts, and some states or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state and country to country.

WARRANTY TERMS **

Brand/Product Type	Consumer Use	Commercial Use
Vanguard™	2 years	2 years
Extended Life Series™, I/C®, Intek I/C®, Intek Pro™	2 years	1 year
Kerosene Fuel Operated Engines	1 year	90 days
All Other Briggs & Stratton Engines	2 years	90 days

** Engines used on Home Standby Generator applications are warranted under consumer use only. This warranty does not apply to engines on equipment used for prime power in place of a utility. **Engines used in competitive racing or on commercial or rental tracks are not warranted.**

The warranty period begins on the date of purchase by the first retail consumer or commercial end user, and continues for the period of time stated in the table above. "Consumer use" means personal residential household use by a retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once an engine has experienced commercial use, it shall thereafter be considered as a commercial use engine for purposes of this warranty.

No warranty registration is necessary to obtain warranty on Briggs & Stratton Products. Save your proof of purchase receipt. If you do not provide proof of the initial purchase date at the time warranty service is requested, the manufacturing date of the product will be used to determine the warranty period.

ABOUT YOUR ENGINE WARRANTY

Briggs & Stratton welcomes warranty repair and apologizes to you for being inconvenienced. Any Authorized Service Dealer may perform warranty repairs. Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. For example, warranty would not apply if engine damage occurred because of misuse, lack of routine maintenance, shipping, handling, warehousing or improper installation. Similarly, warranty is void if the serial number of the engine has been removed or the engine has been altered or modified.

If a customer differs with the decision of the Service Dealer, an investigation will be made to determine whether the warranty applies. Ask the Service Dealer to submit all supporting facts to his Distributor or the Factory for review. If the Distributor or the Factory decides that the claim is justified, the customer will be fully reimbursed for those items that are defective. To avoid misunderstanding which might occur between the customer and the Dealer, listed below are some of the causes of engine failure that the warranty does not cover.

Normal wear:

Engines, like all mechanical devices, need periodic parts service and replacement to perform well. Warranty will not cover repair when normal use has exhausted the life of a part or an engine.

Improper maintenance:

The life of an engine depends upon the conditions under which it operates, and the care it receives. Some applications, such as tillers, pumps and rotary mowers, are very often used in dusty or dirty conditions, which can cause what appears to be premature wear. Such wear, when caused by dirt, dust, spark plug cleaning grit, or other abrasive material that has entered the engine because of improper maintenance, is not covered by warranty.

This warranty covers engine related defective material and/or workmanship only, and not replacement or refund of the equipment to which the engine may be mounted. Nor does the warranty extend to repairs required because of:

- Problems caused by parts that are not original Briggs & Stratton parts.**
- Equipment controls or installations that prevent starting, cause unsatisfactory engine performance, or shorten engine life. (Contact equipment manufacturer.)

- Leaking carburetors, clogged fuel pipes, sticking valves, or other damage, caused by using contaminated or stale fuel.
- Parts which are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil (check and refill when necessary, and change at recommended intervals). OIL GARD may not shut down running engine. Engine damage may occur if oil level is not properly maintained.
- Repair or adjustment of associated parts or assemblies such as clutches, transmissions, remote controls, etc., which are not manufactured by Briggs & Stratton.
- Damage or wear to parts caused by dirt, which entered the engine because of improper air cleaner maintenance, re-assembly, or use of a non-original air cleaner element or cartridge. At recommended intervals, clean and/or replace the filter as stated in the Operator's Manual.
- Parts damaged by over-speeding, or overheating caused by grass, debris, or dirt, which plugs or clogs the cooling fins, or flywheel area, or damage caused by operating the engine in a confined area without sufficient ventilation. Clean engine debris at recommended intervals as stated in the Operator's Manual.
- Engine or equipment parts broken by excessive vibration caused by a loose engine mounting, loose cutter blades, unbalanced blades or loose or unbalanced impellers, improper attachment of equipment to engine crankshaft, over-speeding or other abuse in operation.
- A bent or broken crankshaft, caused by striking a solid object with the cutter blade of a rotary lawn mower, or excessive v-belt tightness.
- Routine tune-up or adjustment of the engine.
- Engine or engine component failure, i.e., combustion chamber, valves, valve seats, valve guides, or burned starter motor windings, caused by the use of alternate fuels such as, liquified petroleum, natural gas, altered gasolines, etc.

Warranty service is available only through authorized service dealers by Briggs & Stratton Corporation. Locate your nearest Authorized Service Dealer in our dealer locator map on BRIGGSandSTRATTON.COM or by calling 1-800-233-3723, or as listed in the 'Yellow Pages'™.

Emissions Control System Warranty Statement

Briggs & Stratton Corporation (B&S), the California Air Resources Board (CARB) and the United States Environmental Protection Agency (U.S. EPA) Emissions Control System Warranty Statement (Owner's Defect Warranty Rights and Obligations)

California, United States and Canada Emissions Control Defects Warranty Statement

The California Air Resources Board (CARB), U.S. EPA and B&S are pleased to explain the Emissions Control System Warranty on your small off-road engine (SORE). In California, new small off-road engines model year 2006 and later must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere in the United States, new non-road, spark-ignition engines certified for model year 1997 and later must meet similar standards set forth by the U.S. EPA. B&S must warrant the emissions control system on your engine for the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

Your emissions control system includes parts such as the carburetor, air cleaner, ignition system, fuel line, muffler and catalytic converter. Also included may be connectors and other emissions related assemblies.

Where a warrantable condition exists, B&S will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

Briggs & Stratton Emissions Control Defects Warranty Coverage

Small off-road engines are warranted relative to emissions control parts defects for a

period of two years, subject to provisions set forth below. If any covered part on your engine is defective, the part will be repaired or replaced by B&S.

Owner's Warranty Responsibilities

As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your Operating and Maintenance Instructions. B&S recommends that you retain all your receipts covering maintenance on your small off-road engine, but B&S cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the small off-road engine owner, you should however be aware that B&S may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your small off-road engine to an Authorized B&S Service Dealer as soon as a problem exists. The undisputed warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact a B&S Service Representative at (414) 259-5262.

The emissions warranty is a defects warranty. Defects are judged on normal engine performance. The warranty is not related to an in-use emissions test.

Briggs & Stratton Emissions Control Defects Warranty Provisions

The following are specific provisions relative to your Emissions Control Defects Warranty Coverage. It is in addition to the B&S engine warranty for non-regulated engines found in the Operating and Maintenance Instructions.

1. **Warranted Parts**
Coverage under this warranty extends only to the parts listed below (the emissions control systems parts) to the extent these parts were present on the engine purchased.
 - a. **Fuel Metering System**
 - Cold start enrichment system (soft choke)
 - Carburetor and internal parts
 - Fuel pump
 - Fuel line, fuel line fittings, clamps
 - Fuel tank, cap and tether
 - Carbon canister
 - b. **Air Induction System**
 - Air cleaner
 - Intake manifold
 - Purge and vent line
 - c. **Ignition System**
 - Spark plug(s)
 - Magneto ignition system
 - d. **Catalyst System**
 - Catalytic converter
 - Exhaust manifold
 - Air injection system or pulse valve
 - e. **Miscellaneous Items Used in Above Systems**
 - Vacuum, temperature, position, time sensitive valves and switches
 - Connectors and assemblies
2. **Length of Coverage**
B&S warrants to the initial owner and each subsequent purchaser that the Warranted Parts shall be free from defects in materials and workmanship which caused the failure of the Warranted Parts for a period of two years from the date the engine is delivered to a retail purchaser.
3. **No Charge**
Repair or replacement of any Warranted Part will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a Warranted Part is defective, if the diagnostic work is performed at an Authorized B&S Service Dealer. For emissions warranty service contact your nearest Authorized B&S Service Dealer as listed in the "Yellow Pages" under "Engines, Gasoline," "Gasoline Engines," "Lawn Mowers," or similar category.
4. **Claims and Coverage Exclusions**
Warranty claims shall be filed in accordance with the provisions of the B&S Engine Warranty Policy. Warranty coverage shall be excluded for failures of Warranted Parts which are not original B&S parts or because of abuse, neglect or improper maintenance as set forth in the B&S Engine Warranty Policy. B&S is not liable to cover failures of Warranted Parts caused by the use of add-on, non-original, or modified parts.
5. **Maintenance**
Any Warranted Part which is not scheduled for replacement as required maintenance or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted as to defects for the warranty period. Any Warranted Part which is scheduled for replacement as required maintenance shall be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any replacement part that is equivalent in performance and durability may be used in the performance of any maintenance or repairs. The owner is responsible for the performance of all required maintenance, as defined in the B&S Operating and Maintenance Instructions.
6. **Consequential Coverage**
Coverage hereunder shall extend to the failure of any engine components caused by the failure of any Warranted Part still under warranty.

Look For Relevant Emissions Durability Period and Air Index Information On Your Engine Emissions Label

Engines that are certified to meet the California Air Resources Board (CARB) Tier 2 Emissions Standard must display information regarding the Emissions Durability Period and the Air Index. Briggs & Stratton makes this information available to the consumer on our emissions labels. The engine emissions label will indicate certification information.

The **Emissions Durability Period** describes the number of hours of actual running time for which the engine is certified to be emissions compliant, assuming proper maintenance in accordance with the Operating & Maintenance Instructions. The following categories are used:

Moderate:

Engine is certified to be emissions compliant for 125 hours of actual engine running time.

Intermediate:

Engine is certified to be emissions compliant for 250 hours of actual engine running time.

Extended:

Engine is certified to be emissions compliant for 500 hours of actual engine running time. For example, a typical walk-behind lawn mower is used 20 to 25 hours per year. Therefore, the **Emissions Durability Period** of an engine with an **intermediate** rating would equate to 10 to 12 years.

Certain Briggs & Stratton engines will be certified to meet the United States Environmental Protection Agency (USEPA) Phase 2 emissions standards. For Phase 2 certified engines, the Emissions Compliance Period referred to on the Emissions Compliance label indicates the number of operating hours for which the engine has been shown to meet Federal emissions requirements.

For engines less than 225 cc displacement.

Category C = 125 hours, Category B = 250 hours, Category A = 500 hours

For engines of 225 cc or more displacement.

Category C = 250 hours, Category B = 500 hours, Category A = 1000 hours

Specifications

Engine Specifications	
Model	120000
Displacement	12.48 ci (206 cc)
Bore	2.677 in (68 mm)
Stroke	2.205 in (56 mm)
Oil Capacity	18 - 20 oz (0.54 - 0.59 L)

Engine Specifications	
Model	150000
Displacement	15.22 ci (249 cc)
Bore	2.970 in (75.44 mm)
Stroke	2.205 in (56 mm)
Oil Capacity	18 - 20 oz (0.54 - 0.59 L)

Engine Specifications	
Model	200000
Displacement	18.64 ci (305 cc)
Bore	3.120 in (79.23 mm)
Stroke	2.438 in (61.67 mm)
Oil Capacity	26 - 28 oz (0.77 - 0.83 L)

Engine Specifications	
Model	210000
Displacement	20.85 ci (342 cc)
Bore	3.300 in (83.82 mm)
Stroke	2.438 in (61.67 mm)
Oil Capacity	26 - 28 oz (0.77 - 0.83 L)

Tune-up Specifications *	
Model	120000, 150000
Spark Plug Gap	0.030 in (0.76 mm)
Spark Plug Torque	180 lb-in (20 Nm)
Armature Air Gap	0.010 - 0.014 in (0.25 - 0.36 mm)
Intake Valve Clearance	0.004 - 0.006 in (0.10 - 0.15 mm)
Exhaust Valve Clearance	0.009 - 0.011 in (0.23 - 0.28 mm)

Tune-up Specifications *	
Model	200000, 210000
Spark Plug Gap	0.030 in (0.76 mm)
Spark Plug Torque	180 lb-in (20 Nm)
Armature Air Gap	0.010 - 0.014 in (0.25 - 0.36 mm)
Intake Valve Clearance	0.004 - 0.006 in (0.10 - 0.15 mm)
Exhaust Valve Clearance	0.009 - 0.011 in (0.23 - 0.28 mm)

* Engine power will decrease 3.5% for each 1,000 feet (300 meters) above sea level and 1% for each 10° F (5.6° C) above 77° F (25° C). The engine will operate satisfactorily at an angle up to 15°. Refer to the equipment operator's manual for safe allowable operating limits on slopes.

Common Service Parts ✓			
Service Part	Part Number	Service Part	Part Number
Fuel Additive	5041, 5058	Spark Plug Wrench	89838, 5023
Resistor Spark Plug	491055	Spark Tester	19368
Long Life Platinum Spark Plug	5066		

✓ We recommend that you see any Briggs & Stratton Authorized Dealer for all maintenance and service of the engine and engine parts. Use only genuine Briggs & Stratton parts.

Engine Power Rating Information

The gross power rating for individual gas engine models is labeled in accordance with SAE (Society of Automotive Engineers) code J1940 (Small Engine Power & Torque Rating Procedure), and rating performance has been obtained and corrected in accordance with SAE J1995 (Revision 2002-05). Torque values are derived at 3060 RPM; horsepower values are derived at 3600 RPM. Actual gross engine power will be lower and is affected by, among other things, ambient operating conditions and engine-to-engine variability. Given both the wide array of products on which engines are placed and the variety of environmental issues applicable to operating

the equipment, the gas engine will not develop the rated gross power when used in a given piece of power equipment (actual "on-site" or net power). This difference is due to a variety of factors including, but not limited to, accessories (air cleaner, exhaust, charging, cooling, carburetor, fuel pump, etc.), application limitations, ambient operating conditions (temperature, humidity, altitude), and engine-to-engine variability. Due to manufacturing and capacity limitations, Briggs & Stratton may substitute an engine of higher rated power for this Series engine.

en Briggs & Stratton Engines Are Made Under One Or More Of The Following Patents: Design D-247,177 (Other Patents Pending)

6,691,683	6,520,141	6,325,036	6,145,487	6,012,420	5,803,035	5,548,955	5,243,878	5,138,996	4,875,448	D 476,629
6,647,942	6,495,267	6,311,663	6,142,257	5,992,367	5,765,713	5,546,901	5,235,943	5,086,890	4,819,593	D 457,891
6,622,683	6,494,175	6,284,123	6,135,426	5,904,124	5,732,555	5,445,014	5,234,038	5,070,829	4,720,638	D 368,187
6,615,787	6,472,790	6,263,852	6,116,212	5,894,715	5,645,025	5,503,125	5,228,487	5,058,544	4,719,682	D 375,963
6,617,725	6,460,502	6,260,529	6,105,548	5,887,678	5,642,701	5,501,203	5,197,426	5,040,644	4,633,556	D 309,457
6,603,227	6,456,515	6,242,828	6,347,614	5,852,951	5,628,352	5,497,679	5,197,425	5,009,208	4,630,498	D 372,871
6,595,897	6,382,166	6,239,709	6,082,323	5,843,345	5,619,845	5,320,795	5,197,422	4,996,956	4,522,080	D 361,771
6,595,176	6,369,532	6,237,555	6,077,063	5,823,153	5,606,948	5,301,643	5,191,864	4,977,879	4,520,288	D 356,951
6,584,964	6,356,003	6,230,678	6,064,027	5,819,513	5,606,851	5,271,363	5,188,069	4,977,877	4,512,499	D 309,457
6,557,833	6,349,688	6,213,083	6,040,767	5,813,384	5,605,130	5,269,713	5,186,142	4,971,219	4,453,507	D 308,872
6,542,074	6,347,614	6,202,616	6,014,808	5,809,958	5,497,679	5,265,700	5,150,674	4,895,119	4,430,984	D 308,871



THE POWER WITHIN™